

COUNTRY ANALYSIS BRIEFS

Turkey

Last Updated: April 2009

Background

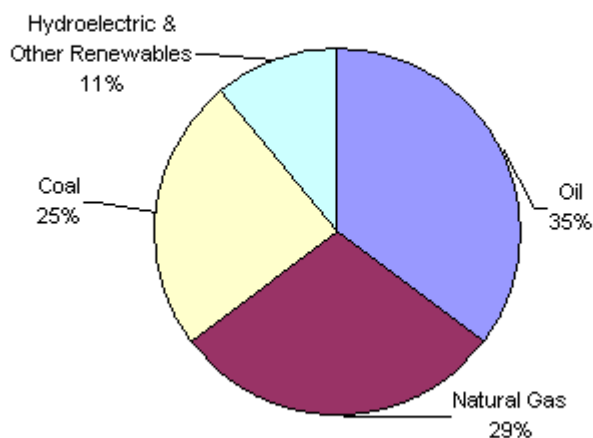
Turkey is seeking to become a regional energy transit hub sending from Russia, the Caspian Sea region and the Middle East westward towards Europe.

Turkey is playing an increasingly important role in the transit of oil and gas supplies. Sources include Russia, the Caspian region, and the Middle East routed westward to Europe. Additionally, growing volumes of Russian and Caspian oil are being sent by tanker via the [Bosporus Straits](#) to Western markets while a terminal on Turkey's Mediterranean coast at Ceyhan allows the country to export oil from northern Iraq and Azerbaijan.



Oil consumption, at 35 percent, accounted for the majority of Turkish energy consumption in 2006, followed by natural gas at 29 percent. Coal comprised 25 percent, followed by hydroelectric and renewable consumption at 11 percent. Nuclear electric energy consumption was zero in 2006.

Total Turkish Energy Consumption in 2006 (BTU)



Source: EIA International Energy Annual 2006.

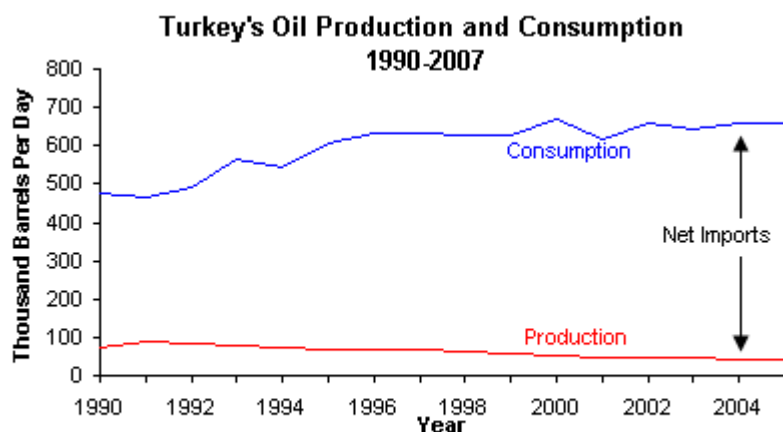
Oil

Although Turkey is not a major oil producer, its emerging role as an important oil transit country makes it increasingly important to world oil markets.

Exploration and Production

As of January 1, 2009, the *Oil & Gas Journal* estimated Turkey's proved oil reserves at 300 million barrels, located mostly in the south-east region. Since its peak in 1991, oil production in Turkey has continued its downward trend, reaching 45 thousand bbl/d in 2007. There may be significant reserves under the Aegean Sea, but exploration has been limited by a long-running dispute with neighboring Greece over the sovereignty of territorial waters in the Aegean.

Oilfields in the Hakkari Basin are old and expensive to exploit, and production costs in Turkey are considered quite high. In July 2003, Australia's Amity Oil reported a discovery at Adatepe in Thrace. In 2007, state-owned Turkish Petroleum Corporation (TPAO) announced plans to begin exploration in the eastern Mediterranean, although no work has yet been undertaken. Many view this call for foreign partners to jointly explore the eastern Mediterranean mainly as a direct response to Cyprus's own plans to begin exploration in nearby waters.



Source: EIA, *International Petroleum Monthly*;
Short-Term Energy Outlook

Consumption and Imports

Turkey's oil consumption has continued to grow and reached a peak of 690 thousand bbl/d in 2007, far outstripping domestic production levels. In 2007, Russia became Turkey's top supplier of oil, surpassing Iran for the first time. Iran is Turkey's second-largest crude oil supplier, followed by Saudi Arabia with lesser volumes supplied by Libya, Iraq, and Syria, among others.

Sector Organization

TPAO competes with the private sector in exploration, production, and refining. TPAO accounts for approximately 70 percent of the country's total oil output. The state-owned firm additionally has preferential rights in Turkey. As such, most foreign companies involved in upstream activities in Turkey work in joint ventures with TPAO.

Oil Pipelines

Turkey is playing an increasingly important role in the transit of oil supplies from Russia, the Caspian region, and the Middle East to Europe. Growing volumes of Russian and Caspian oil are being sent by tanker via the Bosphorus Straits to Western markets, while a terminal on Turkey's Mediterranean coast at Ceyhan allows the country to export oil from northern Iraq via a pipeline from Kirkuk and from Azerbaijan via the Baku-Tbilisi-Ceyhan pipeline.

Oil Transit Routes

To ease increasing oil traffic through the Bosphorus Straits, a number of Bosphorus bypass options are under consideration in Bulgaria, Romania, Ukraine and Turkey itself.

Major Turkish Oil Pipelines				
Name	Capacity	Source	Route	Notes
The Baku-Tbilisi-Ceyhan Pipeline (BTC)	1 million bbl/d	Azeri Light crude	Azerbaijan-Georgia-Turkey	Began operations in 2006. It is the only major export route for Caspian oil that does not pass through Russian territory or the crowded Turkish Straits.
Kirkuk-Ceyhan	1.65 million bbl/d		Iraq-Turkey	Frequent sabotage attacks on the pipeline and feeder lines regularly disrupt operations. However, throughput has increased gradually and supplies have become more stable as violence in Iraq has declined.
Samsun-Ceyhan (proposed)	1 million to 1.4 million bbl/d			In May 2006 the Turkish government approved plans for the Samsun-Ceyhan pipeline. Initial construction began in 2007.

Source: Global Insight

The Baku-Tbilisi-Ceyhan Pipeline, which bypasses the Bosphorus Straits chokepoint, is the first of numerous planned or proposed Bosphorus bypass pipelines to be constructed.



Another project under consideration is the Samsun-Ceyhan bypass, which would transport oil from Turkey's Black Sea port of Samsun to Ceyhan on the Mediterranean coast. Turkey's Council of Ministers gave initial approval to the construction of the line in May 2006. The project is being developed by a 50-50 joint venture between Italy's Eni and Turkey's Calik Energy, called the Trans-Anadolu Pipeline Company (TAPPCO). Eni holds an 18.5 percent interest in the Kashagan oil field in the Kazakh section of the Caspian Sea, which would likely be a primary source for the Samsun-Ceyhan pipeline. While the Bosphorus is still regarded as a major shipping chokepoint for transit between the Black Sea and the Mediterranean, the Samsun-Ceyhan pipeline will help ease the pressure from the Bosphorus in the next decade.



Several other possible Bosphorus bypass options are being examined, some of which do not involve Turkey. One proposal that has received significant attention is a pipeline that would pump crude oil from Bulgaria's Black Sea port of Bourgas to Greece's Mediterranean port of Alexandroupolis, known as the Bapline project.

Ports

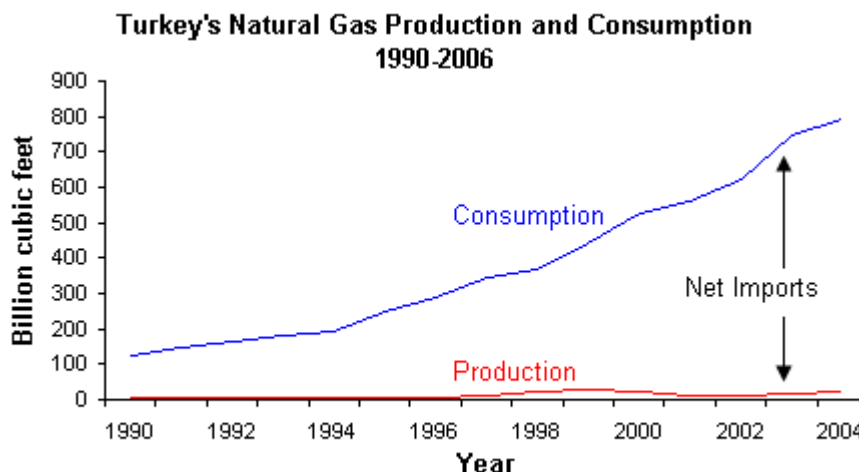
The port of Ceyhan has become an important outlet for both Caspian oil exports as well as Iraqi oil shipments from Kirkuk. Turkey is seeking to build up Ceyhan as a regional energy hub, with private investors receiving approval to build several refineries at the oil terminal. The Kirkuk-Ceyhan pipeline has a capacity of 1.65 million bbl/d.

Natural Gas

Exploration and Production

As of January 1, 2009, the *Oil & Gas Journal* estimates Turkish reserves at 300 billion cubic feet (Bcf). Turkey produced 32 Bcf of natural gas in 2006, well below domestic consumption.

Turkey holds a strategic role in natural gas—between the world's second largest natural gas market, continental Europe, and the substantial gas reserves of the Caspian Basin and the Middle East. However, rapidly increasing domestic demand will make it difficult to meet re-export commitments.



Source: EIA International Energy Annual

The largest of Turkey's 14 gas fields is Marmara Kuzey, an offshore field in the Sea of Marmara in the Thrace-Gallipoli Basin. Gas production is mainly carried out by three companies: TPAO, BP, and Shell. Most domestic gas production is used for re-injection into Turkey's oilfields as part of Enhanced Oil Recovery (EOR) projects.

Consumption

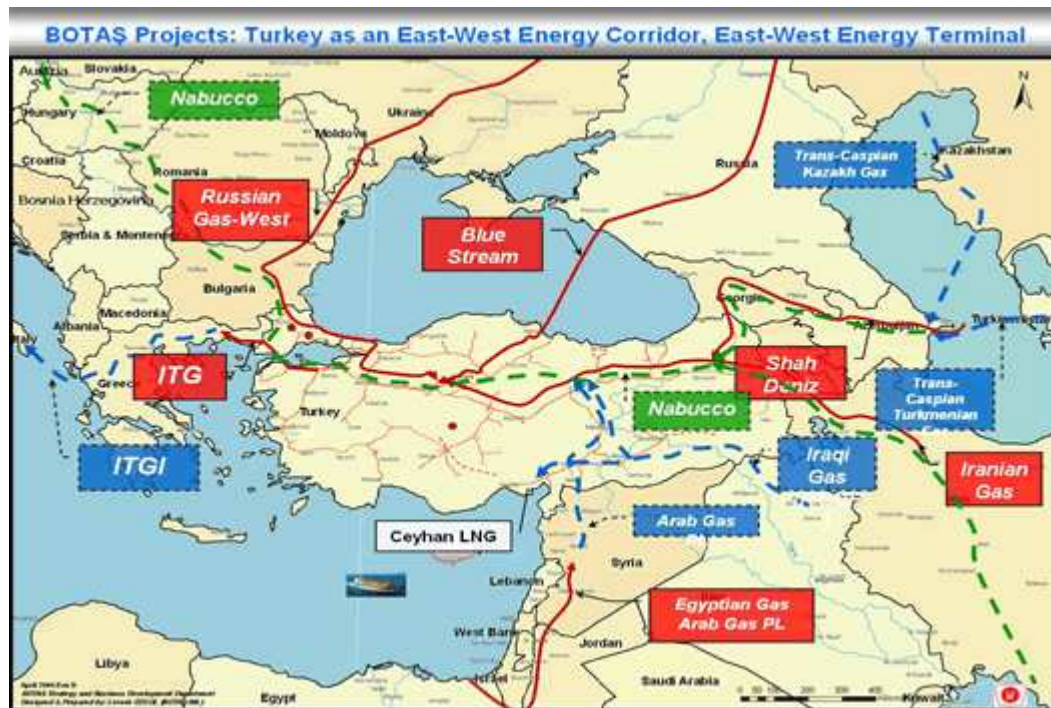
Consumption has increased rapidly, hitting a peak of 1.1 trillion cubic feet (Tcf) in 2006 up from 122.5 Bcf in 1990. The bulk of Turkey's gas imports come from Russia, with Gazprom sending gas to north-west Turkey via the Balkans as well as to central Turkey via the Blue Stream pipeline that links Russia to Turkey across the Black Sea. Turkey also imports gas via pipeline from Iran and Azerbaijan, as well as liquefied natural gas (LNG) supplies under contract with Algeria and Nigeria. Turkey began receiving gas from Azerbaijan's Shah Deniz field in 2007 to help offset rising consumption. Rising demand combined with often erratic deliveries of gas from Iran in early 2007 and 2008 have periodically forced Turkey to request additional deliveries of gas from Russia to meet domestic demand requirements.

Sector Organization

The Turkish gas sector is regulated by the Energy Markets Regulatory Authority (EMRA). The sector is dominated by state-owned Petroleum Pipeline Corporation, better known as BOTAS, although 78 percent of the market is legally open to competition. BOTAS owns the domestic transmission network and has a monopoly over domestic distribution and supply. In 2009, BOTAS is required to transfer its import contracts to the private sector and unbundle its natural gas services. Gas prices in Turkey remain capped by EMRA well below the market level.

Natural Gas Pipelines

With the 2007 launch of Azerbaijani gas exports to Europe through the Turkey-Greece gas pipeline interconnector, Turkey has begun to realize its goal of becoming an energy bridge for gas supplies from the Caspian region to Europe.



Turkey is positioned to play an even bigger role linking gas producers in the Caspian and Middle East to consumers in south-eastern and central Europe with the proposed Nabucco gas pipeline project and a potential Iranian gas transit deal. The Nabucco project is geopolitically significant as it will secure access to new gas supplies from new sources in the Caspian region as well as the Middle East. For this reason it has been regarded as vital for the EU's long-term strategy to boost supply security.

Turkey's Gas Transit Potential	
Country	Potential Gas Transit
Russia	1,659 Tcf
Iran	1,024 Tcf
Saudi Arabia	254Tcf
Iraq	113 Tcf
Kazakhstan	109 Tcf
Turkmenistan	102 Tcf
Caspian Sea	56 Tcf
Egypt	42 Tcf

Source: CERA

Natural Gas Imports

For Turkey to function as a gas transit state, it must be able to import enough gas to satisfy both domestic demand and any re-export commitments as well as provide enough pipeline capacity to transport Caspian and Middle Eastern gas across Turkey to Europe. At the moment, Turkey enjoys considerable excess import capacity. However, as Turkish demand increases, surplus capacity is expected to decline; it could disappear altogether within the next decade without additional investment.

Major Turkish Gas Pipelines				
Name	Capacity	Source	Route	Notes
South Caucasus Pipeline (SCP) or Baku-Tbilisi-Erzurum Pipeline (BTE)	9.9 Tcf/year	Azeri gas	Azerbaijan-Georgia-Turkey	Pipeline connecting Azerbaijan's offshore Shah Deniz gas field to Turkey via Georgia. Construction of the pipeline began in 2003 and was completed in 2006. Problems delayed initial gas exports to Turkey until 2007, although gas supplies via the pipeline have steadily risen since then.
Blue Stream Pipeline	565 Bcf/year	Russian gas	Russia-Turkey via the Black Sea	Became operational in 2003. Volumes via the pipeline have been well below capacity because of a price dispute between Turkey and Russia, although supplies have been increasing. Russia and Turkey have discussed a potential "Blue Stream-2" pipeline that would extend the pipeline to Israel via the Mediterranean Sea.
Iran-Turkey Pipeline	494 Bcf/year	Iranian gas	Iran-Turkey	The Iran-Turkey pipeline runs from the north-western Iranian city of Tabriz to the Turkish capital of Ankara. Turkey took its first Iranian gas delivery in December 2001. Iranian supplies have been periodically disrupted either because of disputes between the two countries or without any explanation from Iran, particularly in winter when Iran's own demand increases. Several explosions on the line near the Turkey-Iran border have also disrupted supplies temporarily in the past.
Romania-Bulgaria-Turkey Pipeline	635 Bcf/year	Russian gas	Romania-Bulgaria-Turkey	Pipeline connecting south-eastern Europe to Turkey allows carries Russian gas into Istanbul and north-western Turkey. Pipeline length includes the common transit pipeline from the Bulgaria-Romania border to Greece and Macedonia and the loop transit pipeline to Turkey.
Trans-Caspian Gas Pipeline (TCP) (proposed)	706 Bcf/year - 1.06 Tcf/year	Turkmen gas	Turkmenistan to Azerbaijan to Georgia to Turkey	In 1999, Turkey signed a 30-year gas supply agreement with Turkmenistan for the delivery of gas to satisfy Turkish demand, while other Turkmen gas to be piped to Europe through Turkey. However, Turkmenistan and Azerbaijan failed to agree on capacity for the pipeline, and the discovery of the Shah Deniz gas field in Azerbaijan in 1999 effectively halted the TCP project, which also faced opposition because of the lack of an agreement of the Caspian littoral states on a legal regime for the Caspian Sea. The TCP has been resuscitated by the European Union's interest in importing more non-Russian gas via Turkey. However, an agreement by Turkmenistan and Russia to expand a "Caspian shore" pipeline has put the TCP on the hold again, although the EU and United States continue to support the TCP which would likely connect to the Nabucco pipeline.
Nabucco Pipeline (proposed)	up to 1.094 Tcf/year	Caspian and Middle Eastern gas	Turkey-Bulgaria-Romania-Hungary-Austria	The Nabucco Consortium is planning to build a pipeline that would transport Caspian and Middle Eastern gas via Turkey and the Balkans to Baumgarten, Austria, thus allowing the EU to reduce dependence on Russian gas. Progress in carrying out the project has been slow, but the pipeline has strong political support in Europe. Pipeline could be operational by 2013, although the project timetable could be held up over an impasse between Azerbaijan and Turkey gas prices and the absence of a transit agreement.

Source: Global Insight

To account for this expected shortage, TPAO and BOTAŞ are pursuing several gas storage projects in Turkey. With greater storage capacity, Turkey will be better able to meet peak gas demand, cope with shortfalls from suppliers, and develop transit capacity and maintain the flow of reexports to Europe. Access to BOTAS and TPAO's storage facilities is expected to open to new importers in 2011, allowing them the opportunity to fulfill storage obligations.

Liquefied Natural Gas

Turkey imports liquefied natural gas (LNG) from Algeria and Nigeria to its only regasification plant at Marmara Ereğlisi, which is owned by BOTAS. LNG imports have continued to rise as Turkey seeks to diversify its sources of gas imports. Turkey is also taking steps to increase regasification capacity at two of its ports.

Profile

Energy Overview

Minister of Energy and Natural Resources

Mehmet Hilmi Guler

Proven Oil Reserves (January 1, 2009)	300 million barrels
Oil Production (2007)	45,000 barrels per day.
Oil Consumption (2007)	690,000 barrels per day
Proven Natural Gas Reserves (January 1, 2009)	300 billion cubic feet
Natural Gas Production (2006)	320 billion cubic feet
Natural Gas Consumption (2006)	1.1 trillion cubic feet
Recoverable Coal Reserves (2005)	2,000 million short tons
Coal Production (2006)	72 million short tons
Coal Consumption (2006)	86 million short tons
Electricity Installed Capacity (2005)	36.8 gigawatts
Electricity Production (2006)	167.6 billion kilowatt hours
Electricity Consumption (2005)	129.01 billion kilowatt hours
Total Energy Consumption (2006)	3.5 Quadrillion Btus*, of which Oil (35%), Coal (25%), Natural Gas (29%), Hydroelectricity (11%), Nuclear (0%), Other Renewables (0.12%)
Total Per Capita Energy Consumption (2006)	55.5 million Btus
Energy Intensity (2005)	6,125 Btu per \$2000-PPP**

Oil and Gas Industry

Organization	Turkey's oil sector is mostly open to foreign company involvement, although both upstream and downstream activities are mostly dominated by state-owned companies.
Major Oil/Gas Ports	Ceyhan, Iskenderum, Istanbul, Izmir, Mersin
Foreign Company Involvement	Amity Oil, BP, Chevron, ConocoPhillips, Eni, ExxonMobil, OMV, Royal Dutch Shell, Treador, Total
Major Oil Fields	Bati Raman, Karakas, K. Karakas, Raman
Major Natural Gas Fields	Marmara Kuzey
Major Refineries (capacity, bbl/d)	Izmit (230,000), Izmir-Aliaga- (200,000), ATAS (Mersin) (162,000), Kirikkale (100,000), Batman (22,300)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA – Turkey Country Energy Profile](#)

U.S. Government

[CIA World Factbook - Turkey](#)

[U.S. State Department's Consular Information Sheet - Turkey](#)

[U.S. Embassy in Turkey](#)

Associations and Institutions

[Central Asia-Caucasus Institute: "The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West"](#)

[Turkey and the IMF](#)

[World Bank: Turkey](#)

[EU Turkey Accession Page](#)

Foreign Government Agencies

[Turkey's Embassy in the U.S.](#)

[Turkey's Ministry of Energy and Natural Resources](#)

[Turkey's Ministry of Foreign Affairs](#)

Oil and Natural Gas

[Turkish Petroleum Corporation](#)

[Botas Petroleum Pipeline Corporation](#)

[Petrol Ofisi AS \(POAS\)](#)

[Turkish Petroleum Refineries Corporation \(Tupras\)](#)

Sources

Agence France Presse

Alexander's Gas and Oil Connections

Argus Petroleum Weekly

Associated Press Newswires

BBC

Cambridge Energy Research Associates

CIA World Factbook

Dow Jones Newswires

Economist Intelligence Unit Country Reports

Energy Intelligence

Financial Times

Global Insight

Global Power Report

Hart's Oil and Gas Investor

International Energy Agency

International Monetary Fund

Nefte Compass

New York Times

Oil Daily

Oil and Gas Journal

Petroleum Economist

Petroleum Intelligence Weekly

Platts Oilgram News

Reuters

Turkish Daily News

U.S. Energy Information Administration

Wall Street Journal

World Gas Intelligence

World Markets Research Center

Contact Info

cabs@eia.doe.gov

(202)586-8800

cabs@eia.doe.gov